

U.S. ENVIRONMENTAL PROTECTION AGENCY

**COOLING WATER INTAKE STRUCTURES
NEW FACILITY FINAL RULE**

**Office of Water
Office of Science and Technology**

EPA ICR no. 1973.02

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1 IDENTIFICATION OF THE INFORMATION COLLECTION

1a Title of the Information Collection

TITLE: Information Collection Request for Cooling Water Intake Structure New Facility Final rule

U.S. EPA ICR NUMBER: 1973.02

1b Short Characterization/Abstract

The proposed section 316(b) New Facility Rule requires the collection of information from new facilities that use a cooling water intake structure (CWIS). Section 316(b) of the CWA requires that any standard established under section 301 or 306 of the CWA and applicable to a point source must require that the location, design, construction and capacity of CWISs at that facility reflect the best technology available (BTA) for minimizing adverse environmental impact. Such impact occurs as a result of impingement (where fish and other aquatic life are trapped on technologies at the entrance to cooling water intake structures) and entrainment (where aquatic organisms, eggs, and larvae are taken into the cooling system, passed through the heat exchanger, and then pumped back out with the discharge from the facility). This proposal establishes standard requirements applicable to the location, design, construction, and capacity of cooling water intake structures at new facilities. These requirements seek to minimize the adverse environmental impact associated with the use of CWISs.

Under the final rule, a new facility is defined as any building, structure, facility, or installation that meets the definition of a “new source” or “new discharger” in 40 CFR122.2 and 122.29(b),(1),(2) and (4); commences construction after the effective date of this rule; and uses either a newly constructed cooling water intake structure or an existing cooling water structure whose design capacity is increased to accommodate the intake of additional cooling water (40 CFR, section 125.83). According to the final rule, before a new facility is subject to this regulation it must first be a point source (i.e., be subject to a National Pollutant Discharge Elimination System (NPDES) permit) that uses or proposes to use a CWIS, has at least one cooling water intake structure that uses at least 25 percent (measured on an average monthly basis) of the water it withdraws for cooling purposes, and has a design intake flow

greater than two million gallons per day (MGD). Use of a cooling water intake structure includes obtaining cooling water by any sort of contract or arrangement with an independent supplier (or multiple suppliers) of cooling water if the supplier or suppliers withdraw(s) water from waters of the United States (40 CFR, section 125.81).

Generally, facilities that meet these criteria fall into two major groups, new power producing facilities and new manufacturing facilities. Power producers affected by the final rule are likely to be both utility and nonutility power producers since they typically have large cooling water requirements. The U.S. Environmental Protection Agency (EPA) identified four categories of manufacturing facilities that tend to require large amounts of cooling water: paper and allied products, chemical and allied products, petroleum and coal products, and primary metals (see Section 4a).

The proposed section 316(b) New Facility Rule would require several distinct types of information collection as part of the NPDES application. In general, the information would be used to identify which of the standard requirements in the final rule apply to the facility, how the facility is meeting these requirements, and whether the facility is meeting the goal of minimizing adverse environmental impact. Specific data requirements that would apply to all facilities are:

- **source water physical data** for evaluation of potential impact to the water body in which the intake structure is placed
- **intake structure data** consisting of intake structure design and facility water balance diagram to evaluate the potential for impingement and entrainment of aquatic organisms
- **source water baseline biological characterization data** that characterizes the biological community in the vicinity of the cooling water intake structure, along with a description of data sources and data collection procedures
- **source waterbody flow data** to demonstrate compliance with the proportional flow (i.e., intake flow may not exceed a certain proportion of source water body flow) requirements

Additional data requirements would apply to facilities, depending on which of two alternative permitting tracks they choose. Specific data requirements that would apply to facilities choosing to comply with the requirements of Track I are:

- **flow reduction and velocity data** to demonstrate compliance with the flow reduction and velocity requirements

- **design and construction technology plan** to demonstrate compliance with the requirement to implement technologies to minimize impingement and entrainment and maximize survival of impinged organisms

Specific data requirements that would apply to facilities choosing to comply with the requirements of Track II are:

- **comprehensive demonstration study** that characterizes the source water baseline in the vicinity of the intake, characterizes operation of the cooling water intake, and confirms that proposed technologies reduce the impacts to fish and shellfish to levels comparable to those that would be achieved by implementing the flow reduction, velocity and technology requirements of Track I

In addition to the information requirements of the NPDES permit application, NPDES permits normally specify monitoring and reporting requirements to be conducted by the permitted entity. New facilities that fall within the scope of the rule would be required to perform biological monitoring of impingement and entrainment, monitoring of the through-screen or through-technology velocity, and visual or remote inspections of the CWIS and any design and construction technologies. The results of each facility's monitoring efforts are expected to be analyzed and then published yearly in an annual status report to the permitting Director. Finally, facilities would be required to maintain records of all submitted documents, supporting materials, and monitoring results for at least three years.

Authorized States must update their programs to be consistent with the proposed cooling water intake requirements, once they are published as final regulations. State Directors would be required to also review all materials submitted to them by the facilities within the scope of the proposed regulation, and confirm their compliance with the section 316(b) New Facility Rule. Directors would be required to also work with new facilities to determine if design and construction technologies are necessary and appropriate to minimize adverse environmental impact.

As suggested, the primary users of this information will be States authorized to administer the NPDES permitting program, and the EPA. It is anticipated that other government agencies, both at the State and federal level, as well as public interest groups, private companies, and many individuals will also use the data.

During the first three years after rule promulgation, the information collection required by the rule will involve responses from an estimated total of 18 facilities and 44 States and Territories and cost approximately \$11.6 million (including operation and maintenance costs), with an annual average of 38 respondents, 40,376 burden hours, and \$3.9 million per year (see Exhibit A11 in Appendix A).

2 NEED FOR AND USE OF THE COLLECTION

2a Need/Authority for the Collection

The following sections describe the need for this information collection and the legal authority under which this information would be collected.

2a(i) Need for the Collection

The information requirements of the final rule are necessary to ensure that new facilities are complying with the rule's provisions, and thereby minimizing adverse environmental impact resulting from impingement and entrainment losses due to the withdrawal of cooling water. There is substantial evidence that existing cooling water intake structures have an adverse impact on the nearby environment. There is also evidence that current systems are not using the BTA, and that a national regulatory approach is justified.

Evidence that Significant Environmental Impact is Occurring as a Result of Cooling Water Intake Structures

EPA's May 1977 *Guidance for Evaluating the Adverse Impact of Cooling Water Intake Structures on the Aquatic Environment* describes two ways in which cooling water intake structures can cause adverse environmental impact. The first is entrainment, which occurs when organisms are drawn through the cooling water intake structure into the cooling system. There, the organisms are subject to mechanical, thermal, and toxic stress. Mortality of entrained organisms is extremely high. The second effect is the impingement of fish and other aquatic organisms on devices installed on the cooling water intake structure to prevent debris from entering the facility's cooling water system. Organisms are trapped against these screening devices by the velocity of the water passing through the cooling water intake structure.

Research of the available literature and section 316(b) demonstration studies obtained from NPDES permit files has identified numerous documented cases of impact associated with impingement and entrainment and the subsequent effects of these actions on populations of aquatic organisms. For

example, specific losses associated with individual steam electric generating plants include three to four billion larvae and post larvae per year,¹ 23 tons of fish and shellfish of recreational, commercial, or forage value lost each year,² and one million fish lost during a three-week study period.³ Several studies estimating the impact of entrainment on populations of key commercial or recreational fish predicted declines in population size. Studies focusing on entrainment mortality in the Hudson River predicted reductions in the year-class strength for six species ranging from 4 percent to 79 percent depending on the species.⁴ A modeling study of the impact of entrainment mortality on the population of a selected species in the Cape Fear estuarine system predicted a 15 to 35 percent reduction in the population.⁵

The following are among other more recent documented examples of impact occurring as a result of cooling water intake structures:

A. Brayton Point. PG&E Generating's Brayton Point plant (formerly owned by New England Power Company) is located in Mt. Hope Bay, in the northeastern reach of Narragansett Bay, Rhode Island. To increase electric generating capacity, Unit 4 was switched from closed-cycle to once-through cooling in 1985. The modification of Unit 4 increased cooling water intake flow by 45 percent. Studies designed to evaluate whether the cooling water intake structure was affecting fish species abundance trends found that Mt. Hope Bay experienced a progressively steady rate of decline in finfish species of recreational, commercial, and ecological importance.⁶ In contrast, species abundance trends

¹ *Brunswick Nuclear Steam Electric Generating Plant of Carolina Power and Light Company Located near Southport, North Carolina, Historical Summary and Review of section 316(b) Issues*. EPA Region IV, September 19, 1979

² *Findings and Determination under 33 U.S.C. § 1326, In the Matter of Florida Power Corporation Crystal River Power Plant Units 1, 2, and 3*. NPDES Permit No. FL0000159. EPA Region IV, December 2, 1986

³ *Impingement Losses at the D.C. Cook Nuclear Power Plant during 1975-1982 with a Discussion of Factors Responsible and Possible Impact on Local Populations*, Thurber, Nancy J. and David J. Jude. Special Report No. 115 of the Great Lakes Research Division. Great Lakes and Marine Waters Center. The University of Michigan. 1985.

⁴ *Estimates of Entrainment Mortality for Striped Bass and Other Fish Species Inhabiting the Hudson River Estuary*, Boreman, John and Phillip Goodyear. American Fisheries Society Monograph 4:152-160, 1988.

⁵ *Brunswick Nuclear Steam Electric Generating Plant of Carolina Power and Light Company, Historically Summary and Review of section 316(b) Issues*. EPA Region IV, 1979.

⁶ *Comparison of Trends in the Finfish Assemblages of Mt. Hope Bay and Narragansett Bay in Relation to Operations of the New England Power Brayton Point Station*. Mark Gibson, Rhode Island Division Fish and

were relatively stable in coastal areas and portions of Narragansett Bay that are not influenced by the cooling water intake structure. Further strengthening the evidence that the cooling water intake structure was contributing to the documented declines was the finding that the rate of population decline increased substantially with the full implementation of the once-through cooling mode for Unit 4.

B. San Onofre Nuclear Generating Station. The San Onofre Nuclear Generating Station (SONGS) is on the coastline of the Southern California Bight, approximately 2.5 miles southeast of San Clemente, California. The marine portions of Units 2 and 3, which are once-through, open-cycle cooling systems, began commercial operation in August of 1993 and 1994, respectively. Since then, many studies have been completed to evaluate the impact of the SONGS facility on the marine environment.⁷

Studies of kelp beds in near shore waters within the vicinity of the SONGS facility determined that the operation of cooling water intake structures resulted in a 60 percent (80 hectare) reduction in the area covered by moderate to high density kelp. Studies indicated that poor survival and lack of development of new kelp plants was the result of increased turbidity due to withdrawal of intake water at SONGS. The loss of kelp was also determined to be detrimental to fish communities associated with the kelp forests. For example, fish living close to the cobble bottom in the impact area experienced a 70 percent decline in abundance. Fish living in the water column in the impact areas had a 17 percent loss in abundance and a 33 percent decline in biomass relative to control populations. The abundance of large invertebrates within kelp beds also declined for many species, particularly snails.

Estimated losses of midwater fish species due to direct entrainment by cooling water intake structures at SONGS ranges between 16.5 and 45 tons per year. This loss represents a 41 percent mortality rate for fish (primarily northern anchovy, queenfish, and white croaker) entrained by intake water at SONGS. In a normal year, approximately 350,000 juvenile white croaker would be killed through entrainment at SONGS. This number represents 33,000 adult individuals or 3.5 tons of adult fish. Changes in densities of fish populations within the vicinity of the plant were observed in species of queen fish and white croaker relative to control populations. Within 3 kilometers of SONGS, the density of queenfish and white croaker decreased by 34 to 63 percent in shallow water samples and 50 to 70 percent in deep water samples.

Wildlife, Marine Fisheries Office, June 1995 and revised August 1996.

⁷ Review of Southern California Edison, San Onofre Nuclear Generating Station (SONGS) 316(b) Demonstration. Prepared by SAIC, July 20, 1993.

Evidence That Point Sources Are Not Using Best Technology Available To Minimize Adverse Environmental Impact

The section 316(b) New Facility Rule addresses CWISs at new facilities rather than existing ones. EPA, however, investigated the types of technologies currently employed at existing facilities with CWISs to determine whether there is an existing trend toward greater use of BTA technologies, which might indicate that new facilities are also most likely to implement BTA technologies.

EPA studied traditional steam electric utilities because they use a wide variety of cooling water intake technologies to maximize cooling system efficiency and minimize environmental impact. Data on technologies used at these facilities can be found in the *Power Statistics Database*, a database funded by the Edison Electric Institute and maintained by the Utility Data Institute (UDI). The database consists of a compilation of limited information on cooling water intake structures voluntarily reported by traditional steam electric utilities to UDI. Updated yearly until 1994, the database provides information on the technologies employed at individual facilities, but it does not provide information on whether the technology employed was determined to be BTA. As a result, the database could not help EPA evaluate whether the technologies employed at specific cooling water intake structures would be considered BTA at the present time.

Nevertheless, EPA looked at what technologies had been implemented at traditional steam electric utilities. Based on knowledge gained from extensive literature reviews and dialogue with other Federal, State, industry, academic, consulting, and environmental experts, EPA made assumptions about what technologies might be considered “best” under certain circumstances. Using these assumptions to evaluate the data on existing technology, EPA concluded that many point sources are not using BTA to minimize adverse environmental impact.

Evidence that a National Regulatory Approach Is Warranted

NPDES permitting authorities have codified the requirements of section 316(b) in a variety of ways. In 1993, after evaluating State regulations and statutes relating to section 316(b), EPA determined that of the then 40 States with NPDES permitting authority, the majority did not have statutes or regulations specifically addressing CWISs in any detail. Table 1. below summarizes some of the State authorities EPA identified that did address CWISs.

States such as California and Florida have developed regulatory requirements that closely mirror the statutory language of section 316(b). Additionally, several other NPDES States have included language in their statutes or regulations referencing either section 316(b) or 40 CFR Part 125, Subpart I, which is the blank section of the Federal NPDES regulations reserved for criteria applicable to cooling water intake structures. For example, New Jersey’s NPDES regulations state, “[T]he criteria applicable to cooling water intake structures shall be as set forth in 40 CFR Part 125, Subpart I when the USEPA adopts these criteria.” Other States merely restate the statutory language. For example, New York’s NPDES regulations require that “[t]he location, design, construction and capacity of cooling water intake structures, in connection with point source thermal discharges, shall reflect the best technology available for minimizing adverse environmental impact.”

**Table 1. Selected NPDES State Statutory/Regulatory Provisions
Addressing the Impact from Cooling Water Intake Structures**

NPDES State	Citation	Summary of Requirements
Connecticut	RCSA section 22a, 430-4	Provides for coordination with other Federal/State agencies with jurisdiction over fish, wildlife, or public health, which may recommend conditions necessary to avoid substantial impairment of fish, shellfish, or wildlife resources
New Jersey	NJAC section 7:14A-11.6	Criteria applicable to intake structure shall be as set forth in 40 CFR Part 125, when EPA adopts these criteria
New York	6 NYCRR section 704.5	The location, design, construction, and capacity of intake structures in connection with point source thermal discharges shall reflect BTA for minimizing environmental impact
Maryland	MRC sec. 26.08.03	Detailed regulatory provisions addressing BTA determinations
Illinois	35 Ill. Admin. Code 306.201 (1998)	Requirement that new intake structures on waters designated for general use shall be so designed as to minimize harm to fish and other aquatic organisms
Iowa	567 IAC 62.4(455B)	Incorporates 40 CFR part 401, with cooling water intake structure provisions designated “reserved”
California	Cal. Wat. Code section 13142.5(b)	Requirements that new or expanded coastal power plants or other industrial installations using seawater for cooling shall use best available site, design technology, and mitigation measures feasible to minimize intake and mortality of marine life

In discussions with State and EPA regional contacts, EPA has found that there are differences in the manner in which States have implemented their section 316(b) authority through the years. Some States and Regions review section 316(b) requirements each time an NPDES permit is reissued. These permitting authorities may re-evaluate the potential for impact and whether operations or other conditions influencing the potential for impact have changed at the facility. Other permitting authorities were found to have made initial determinations for facilities in the 1970s but not to have revisited the determinations since.

Based on the above findings, EPA believes that approaches to implementing section 316(b) vary greatly. It is evident that some authorities have regulations and other program mechanisms in place to ensure continued implementation of section 316(b) and evaluation of the potential impact from cooling water intake structures, while others do not. Furthermore, section 316(b) determinations are currently made on a case-by-case basis, based on permit writers' best professional judgment. Through discussions with some State permitting officials (e.g., in California, Georgia, and New Jersey), EPA was asked to establish national standards in order to help ease the case-by-case burden on permit writers and to promote national uniformity with respect to implementation of section 316(b).

2a(ii) Authority for the Collection

Section 316 was included in the Federal Water Pollution Control Act of 1972 for the express purpose of regulating thermal discharges and to address the environmental impact of cooling water intake structures. Moreover, section 316(b) is the only provision in the CWA that focuses exclusively on water intake. Section 316(b) provides that “[a]ny standard established pursuant to [CWA section 301] or [CWA section 306] and applicable to a point source shall require that the location, design, construction, and capacity of cooling water intake structures reflect the best technology available for minimizing adverse environmental impact.” The requirements of section 316(b) are closely linked to several of the core elements of the National Pollutant Discharge Elimination System (NPDES) permit program established under the CWA. Conditions implementing section 316(b) are and will continue under this rule to be included in NPDES permits issued under section 402 of the CWA.

EPA published guidance addressing section 316(b) implementation in 1977. (See *Draft Guidance for Evaluating the Adverse Impact of Cooling Water Intake Structures on the Aquatic Environment: section 316(b)* P.L. 92-500 (U.S. EPA, 1977). This guidance describes the studies needed to evaluate the impact of cooling water intake structures on the aquatic environment and

thereby establish a basis for determining the BTA for minimizing adverse environmental impact. The 1977 section 316(b) Draft Guidance (U.S. EPA, 1977, p.4) states that “[t]he environmental-intake interactions in question are highly site-specific and the decision as to best technology available for intake design, location, construction, and capacity must be made on a case-by-case basis.” This case-by-case approach also is consistent with the approach described in the 1976 *Development Document* referenced in the remanded regulation.⁸

The final rule partially fulfills EPA’s obligation to comply with a Consent Decree entered in the United States District Court, Southern District of New York in *Cronin v. Browner*, No. 93 Civ. 0314 (AGS), a case brought against EPA by a coalition of individuals and environmental groups. The Consent Decree as entered on October 10, 1995, provided that EPA propose regulations implementing section 316(b) by July 2, 1999, and take final action with respect to those regulations by August 13, 2001. EPA later moved to amend the Consent Decree by bifurcating the rule into two phases—Phase I addressing new facilities using cooling water intake structures and Phase II addressing existing facilities—and extending the deadlines for proposal and final action. Plaintiffs opposed EPA’s motion for an extension of the deadlines. On March 27, 2000, the Court amended the Consent Decree to provide that EPA propose regulations addressing new facilities on or before July 20, 2000, and propose regulations addressing existing facilities on or before July 20, 2001. The Court left in place the August 13, 2001, deadline for final action and ordered that the parties attempt to reach an agreement with respect to the deadlines in the Consent Decree. EPA proposed regulations for new facilities on July 20, 2000, in partial fulfillment of the Consent Decree.

On November 21, 2000, EPA and the plaintiffs in *Riverkeeper, Inc. v. Whitman* submitted an Amended Consent Decree to the U.S. District Court, Southern District of New York, which the court then signed. The Amended Court Decree revised the existing court order to divide the rulemaking into three phases—Phase I addressing new facilities using cooling water intake structures; Phase II addressing, at a minimum, existing utilities and non-utility power producers using cooling water intake structures and whose flow levels exceed a minimum threshold to be determined by EPA; and Phase III addressing, at a minimum, existing facilities that employ a cooling water intake structure, that are not covered by the Phase II rule and whose intake flow levels exceed a minimum threshold to be determined by EPA. The Amended Consent Decree provided that EPA take final action on regulations for Phase I by November 9, 2001; propose regulations for Phase II by February 28, 2002,

⁸ Although the final section 316(b) regulation remanded in 1977 had been withdrawn and is of no current effect, some permit writers continue to use the *Development Document* cited therein as a source of information and guidance.

and take final action for Phase II by August 28, 2003; and propose regulations for Phase III by June 15, 2003, and take final action for Phase III by December 15, 2004. This final rule fulfills EPA's obligation under the Amended Consent Decree to take final action on regulations addressing new facilities.

2b Practical Utility/Users of the Data

The final rule includes both information that must be submitted to permitting authorities and data that must be collected and maintained on-site by the facility. Each new facility maintains facility-level records of the measurements, diagrams, and calculations submitted to the Directors, as well as the analytical results of monitoring actions. Facilities could use the data to:

- monitor CWIS performance
- monitor the performance of design and construction technologies.

Under the final rule, EPA and NPDES Directors are to maintain records compiled from the regulated facilities. Much of the basic information obtained from the NPDES permit application is stored in EPA's Permit Compliance System (PCS) database. PCS is used to track permit limits, permit expiration dates, monitoring data, and other data, and provides EPA with a nationwide inventory of permit holders. EPA stores basic NOI information submitted for coverage under an NPDES general permit in the NOI database housed at the NOI Processing Center.

EPA Headquarters uses the information contained in PCS and the NOI databases to develop reports on permit issuance, backlog, and compliance rates. The Agency also uses the information to respond to public and Congressional inquiries, develop and guide its policies, formulate its budgets, assist States in acquiring authority for permitting programs, and manage the NPDES program to ensure national consistency in permitting. States can use this initial permit information along with the additional documentation and the annual reports to track facility monitoring, compliance violations, and enforcement activities.

Permittees must reapply for an NPDES permits every five years. The re-application process is the primary mechanism for obtaining up-to-date and new information concerning on-site conditions. Although under the final rule, new facilities provide data from self-monitoring activities in annual reports to the permitting authority, these reports are a less comprehensive information gathering process than is

the permit application process. EPA and States will use re-application data to identify new species at risk or other potential concerns that could lead the permit writers to take the following actions:

- specify additional permit limitations
- assess compliance with applicable standard requirements
- place appropriate special conditions in permits.

Environmental and citizen groups are expected to use the data collected under the final rule to independently assess impingement and entrainment rates for affected water bodies in their location. In addition, the data will be useful for the scientific community for assessing the impact of CWISs on recreational and commercial fisheries productivity and aquatic ecosystem health.

3 NONDUPLICATION, CONSULTATIONS, AND OTHER COLLECTION CRITERIA

The following sections verify and affirm that this Information Collection Request satisfies the Office of Management and Budget's data-collection guidelines, has public support, and does not duplicate another collection.

3a Nonduplication

Given that the rule applies to new facilities, current data sources do not yet exist for the information required under the rule. However, once the facilities are built, data concerning them will be collected by various sources. Therefore, it was important that EPA review existing data sources to identify currently available information on entities subject to section 316(b) regulation and to ensure that the data requested by the rule are not otherwise accessible. Data sources reviewed included: data collected by offices within EPA; data, reports, and analyses published by other federal agencies; reports and analyses published by industry; and publicly available financial information compiled by government and private organizations. From this effort, EPA has determined that the information collection and reporting requirements considered in this ICR are not contained or duplicated in other routinely collected documents or reports.

3b Public Notice Required Prior to ICR Submission to OMB

EPA published a draft of the ICR for public comment with the preamble to the proposed rule. Comments received are addressed as part of the comment/response summary for the final rule.

3c Consultations

The following paragraphs describe the specific outreach activities that EPA Staff performed during the development of the proposed Section 316(b) rule for new facilities. The outreach activities were intended to provide EPA with feedback on issues such as adverse environmental impact, BTA, and the potential cost associated with various regulatory alternatives.

EPA conducted a program of outreach to industry groups, environmental groups, and other government entities to get early feedback on the section 316(b) regulatory effort. EPA coordinated with industry and environmental organization representatives, States and regulators with the Department of Energy(DOE), in an effort to find alternative approaches for regulating new facilities.

EPA has made presentations on the section 316(b) rulemaking effort in general at eleven professional and industry association meetings. EPA also held two public meetings in the Summer of 1998 to discuss issues related to the section 316(b) rulemaking effort. EPA met with industry , environmental, and state and federal government representatives in May, June and July of 2000 to discuss regulatory alternatives for the New Facility Rule. Comments from these meetings helped EPA to evaluate and revise draft regulatory framework options.

The tables below provide lists of the representatives attending the meetings and the organizations they represent. Tables 2, 3, and 4 are for industry organizations, environmental organizations, and Federal and State governments, respectively. In addition to the Federal and State government representatives listed in Table 4, EPA met with representatives from the states of Alabama, Delaware, Florida, Illinois, Indiana, Kentucky, Mississippi, Nebraska, New York, North Carolina, North Dakota, Ohio, Rhode Island, South Carolina, and Virginia, as well as representatives from the New England Interstate WPCA and ORSANCA.

Table 2. Industry Organization Representatives

Organization	Point of Contact
American Forest and Paper Association	Jerry Schwartz
American Petroleum Institute	Jackie Sincore
Utility Water Act Group	Dave Bailey/ Kristy Bulleit/ Jim Stine
Edison Electric Institute	Richard Bozec
Electric Power Research Institute	Doug Dixon

Table 3. Environmental Organization Representatives

Organization	Point of Contact
Atlantic States Marine Fisheries Commission	Carrie Selberg
Delaware Riverkeeper	Maya Van Rossum
Eastern Environmental Law Center	Glenn Elters
Georgetown University Law Center	Jim May
Hudson Riverkeeper	Kent Correll/Theresa Hanczor
Natural Resources Defense Council	Kil Kennedy
Nuclear Information and Resource Service	Paul Gunter
Safe Energy Communication	Linda Gunter

Table 4. Federal and State Government Representatives

Organization	Point of Contact
New York DEC	Bill Sarbello
Small Business Administration	John Pawlow
Tennessee Valley Authority	Jim Wright
NOAA, National Marine Fisheries Service	Brian Pawlak
U.S. Department of Energy	Debra Littleton

3d Effects of Less Frequent Collection

EPA has concluded that less frequent data collection may fail to identify in a timely manner, adverse environmental impact resulting from the operation of new CWISs. In addition, less frequent collection would also hinder the ability of EPA, States, and facility operators to take advantage of technological improvements in impingement and entrainment technologies as they occur, or to track long-term trends.

3e General Guidelines

The information collection requirements of the final rule are in accordance with the Paperwork Reduction Act guidelines at 5 CFR 1320.5(d)(2). Requests for supplemental information for the purposes of emergency response or enforcement activities are exempt from the Paperwork Reduction Act requirements.

3f Confidentiality

Applications for an NPDES permit may contain confidential business information. However, EPA does not consider the specific information being requested by the final rule to be typical of confidential business or personal information. If a respondent does consider this information to be of a personal nature, the respondent may request that such information be treated as confidential. All confidential data will be handled in accordance with 40 CFR § 122.7, 40 CFR Part 2, and EPA's Security Manual Part III, Chapter 9, dated August 9, 1976.

3g Sensitive Questions

The section 316(b) New Facility Rule does not require respondents to divulge information pertaining to private or personal information, such as sexual behavior or religious beliefs. Therefore, this section is not applicable.

4 THE RESPONDENTS AND THE INFORMATION REQUESTED

4a Respondents/SIC

The final rule defines a new facility as any building, structure, facility, or installation that meets the definition of a “new source” or “new discharger” in 40 CFR 122.2 and 122.29(b),(1),(2) and (4); commences construction after the effective date of this rule; and uses either a newly constructed cooling water intake structure or an existing cooling water structure whose design capacity is increased to accommodate the intake of additional cooling water. For a new facility to be subject to this regulation it must be a point source (i.e., be subject to a National Pollutant Discharge Elimination System (NPDES) permit) that uses or proposes to use a CWIS, has at least one cooling water intake structure that uses at least 25 percent (measured on an average monthly basis) of the water it withdraws for cooling purposes, and has a design intake flow greater than two million gallons per day (MGD). Use of a cooling water intake structure includes obtaining cooling water by any sort of contract or arrangement with an independent supplier (or multiple suppliers) of cooling water if the supplier or suppliers withdraw(s) water from waters of the United States (40 CFR, section 125.81).

While respondents would include any facilities that meet the applicable requirements of the rule, EPA estimates that there are six primary industrial sectors that account for more than 99 percent of all cooling water used in the United States. The first two types of facilities that use CWISs include traditional utilities and nonutility power producers. Traditional utilities and nonutility power producers that use cooling water were further limited to those plants that generate electricity by means of steam as the thermodynamic medium (steam electric) because they are associated with large cooling water needs. Facilities in the traditional steam electric utility category are classified under Standard Industrial Classification (SIC) codes 4911 and 493, while nonutility power producers are classified under the major code that corresponds to the primary purpose of the facility (e.g., the primary code may be SIC 49 if the primary purpose of the facility is to generate electricity).

EPA identified four manufacturing industries that were found to use large amounts of cooling water. These manufacturing industries are Paper and Allied Products (SIC Major Group 26), Chemical and Allied Products (SIC Major Group 28), Petroleum and Coal Products (SIC Major Group 29), and Primary Metals (SIC Major Group 33). SIC Codes associated with facilities that may use a CWIS are provided in Table 5. A more detailed accounting of SIC codes for nonutility power producers is provided in Appendix B.

Table 5. Industry Categories and SIC Codes

Respondent Industry Categories	SIC Codes
Traditional Steam Electric Utilities	SIC codes 4911 and 493
Steam Electric Nonutility Power Producers: Industrial Self-Generators Nonindustrial	See Appendix B SIC Major Group 49
Other Industries:	
Agricultural production	0133
Metal mining	1011
Oil and gas extraction	1311, 1321
Mining and quarrying of nonmetallic minerals	1474
Food and kindred products	2046, 2061, 2062, 2063, 2075, 2085
Tobacco products	2141
Textile mill products	2211
Lumber and wood products, except furniture	2415, 2421, 2436, 2493
Paper and allied products	2611, 2621, 2631, 2676
Chemical and allied products	28 (except 2895, 2893, 2851, and 2879)
Petroleum refining and related industries	2911, 2999
Rubber and miscellaneous plastics products	3011, 3069
Stone, clay, glass, and concrete products	3241
Primary metal industries	3312, 3313, 3315, 3316, 3317, 3334, 3339, 3353, 3363, 3365, 3366
Fabricated metal products, except machinery and transportation equipment	3421, 3499
Industrial and commercial machinery and	3523, 3531 computer equipment
Transportation equipment	3724, 3743, 3764
Measuring, analyzing, and controlling instruments; photographic, medical, and optical goods; watches and clocks	3861
Electric, gas, and sanitary services	4911, 4931, 4939, 4961
Educational services	8221

4b Information Requested

The following sections provide details on data items requested and associated activities that the final rule would require respondents to undertake to provide this information. The two principal respondent categories are new facilities subject to the rule and NPDES program Directors (i.e. States and Tribes authorized under CWA Section 402(b) to administer the NPDES permit program, and EPA regional offices).

Information requirements for new facilities will differ depending on criteria established by the rule. Certain information requirements are applicable to all new permitted facilities to which the rule applies. Other information requirements are based on which of two alternative permitting tracks the facility chooses to comply with.

Since section 316(b) standards are implemented through NPDES permits, the section 316(b) New Facility Rule affects Directors in a manner similar to other changes to NPDES program requirements. There are currently 43 States and one territory authorized under CWA Section 402(b) to implement the NPDES permit program, these new cooling water intake structure requirements potentially affect authorized State NPDES programs. To be consistent with the new rule, States will need to revise their current regulations. States will need to begin implementing cooling water intake standard requirements once they are published as final regulations.

4b(i) Data Items, Including Record Keeping Requirements

Data items required by the final rule are gathered for either record keeping or reporting purposes. There are several data items that are collected only during the year(s) prior to the beginning of each permit cycle, and others that are required to be collected on an annual basis.

Reporting Requirements

The proposed section 316(b) new facility regulations would not require the Director to prepare or submit any reports, beyond what is currently required of them under the NPDES program. However, Directors would need to review, maintain records of, and make permitting determinations based upon all documents and reports submitted to them by new facilities.

At the time a new facility submits its NPDES application (180 days prior to operation), the final rule would require the facility to submit information demonstrating that it is employing BTA for its cooling water intake structure to minimize adverse environmental impact in compliance with section 316(b) of the CWA. The information would be used to identify which of the requirements in today's rulemaking apply to the facility, how the facility is meeting these requirements, and whether the facility is meeting the goal of minimizing adverse environmental impact. Four types of information would be required to be included in the NPDES permit applications for all new facilities: (1) source water physical data, (2) intake structure data, (3) source water baseline biological characterization data, and (4) source waterbody flow data.

Additional types of information would be required to be included in the NPDES permit applications for new facilities, depending on which of two alternative permitting tracks they choose to comply with. The additional types of information that would be required to be included in the NPDES permit applications for facilities choosing to comply with the requirements of Track I are: (1) flow reduction data, (2) velocity data, and (3) design and construction technology data.

Facilities choosing to comply with the requirements of Track II must perform a comprehensive demonstration study. The additional types of information required to be included in the NPDES permit application as part of this study are: (1) an information collection proposal plan, (2) a source water biological study, (3) an evaluation of potential cooling water intake structure effects, and (4) a verification monitoring plan.

Information Requirements for All New Facilities

Source Water Physical Data

EPA is proposing to require source water information to evaluate potential impact to the water body in which the intake structure is placed. Typically, intake structures are located offshore, at the shoreline or at the end of an approach intake canal. The intake structure would be affecting different species or life stages depending on its location in the source water and source water type. For example, intakes located at the shoreline could affect spawning and nursery areas and intake located offshore could affect migratory routes. In addition, the proximity of the intake structures to sensitive aquatic ecological areas may result in potential environmental impact. Specific source water physical data items include:

- a narrative description and scale drawings showing the physical configuration of all source water bodies used by the facility, including areal dimensions, depths, salinity and temperature regimes, and other documentation that supports the determination of the water body type where each CWIS is located (40 CFR § 122.21(r)(2))
- identification and characterization of source waterbody hydrological and geomorphological features, and methods used to conduct any physical studies to determine the intake's area of influence within the waterbody and the results of such studies (40 CFR § 122.21(r)(2))
- locational maps (40 CFR § 122.21(r)(2)).

Cooling Water Intake Structure Data

EPA is proposing to require information on the intake structure and the facility's water balance to evaluate the potential for impingement and entrainment of aquatic organisms. Information on the design of the intake structure and its location in the water column allows EPA to evaluate which species or life stages would potentially be subject to impingement and entrainment. A diagram of the facility's water balance would be used to identify the proportion of intake water used for cooling, make-up, and process water. The water balance diagram also would provide a picture of the total flow in and out of the facility, allowing EPA to evaluate compliance with the flow reduction requirements. Specific intake structure data items include:

- a narrative description of the configuration of each of the cooling water intake structures and where it is located in the water body and in the water column (40 CFR § 122.21(r)(3))
- latitude and longitude in degrees, minutes, and seconds for each of the cooling water intake structures (40 CFR § 122.21(r)(3))
- a narrative description of the operation of each of the cooling water intake structures, including design intake flows, daily hours of operation, number of days of the year in operation, and seasonal changes, if applicable (40 CFR § 122.21(r)(3))
- a flow distribution and water balance diagram that includes all sources of water to the facility, recirculating flows, and discharges (40 CFR § 122.21(r)(3))
- engineering drawings of the cooling water intake structure (40 CFR § 122.21(r)(3)).

Source Water Baseline Biological Characterization Data

This information is required to characterize the biological community in the vicinity of the cooling water intake structure and to characterize the operation of the cooling water intake structures. The Director may use this information in subsequent permit renewal proceedings to determine if the Design and Construction Technology Plan should be revised. Supporting information must include existing data (if available), which may be supplemented using actual field studies. Specific source water baseline biological characterization data items include:

- a list of the data that are not available and efforts made to identify sources of the data (40 CFR § 122.21(r)(4))
- a list of species (or relevant taxa) for all life stages and their relative abundance in the vicinity of the intake (40 CFR § 122.21(r)(4))
- identification of the species and life stages that would be most susceptible to impingement and entrainment. Species evaluated should include the most important in terms of significance to commercial and recreational fisheries and the forage base. (40 CFR § 122.21(r)(4))
- identification and evaluation of the primary period of reproduction, larval recruitment, and period of peak abundance for relevant taxa (40 CFR § 122.21(r)(4))
- data representative of the seasonal and daily activities of biological organisms (for example feeding and water column migration) in the vicinity of the intake (40 CFR § 122.21(r)(4))
- identification of all threatened and endangered species that might be susceptible to impingement and entrainment at the intake (40 CFR § 122.21(r)(4))
- documentation of any public participation or consultation with Federal or State agencies undertaken in development of the plan (40 CFR § 122.21(r)(4))
- if the above information is supplemented with data collected using actual field studies, a description of all methods and quality assurance procedures for data collection, sampling, and analysis including a description of the study area; identification of the biological assemblages to be sampled and/or evaluated; data collection, sampling, and analysis methods. The sampling and/or data analysis methods used must be appropriate for a quantitative survey and based on a consideration of methods used in other biological studies performed within the same source water body. The study area should include, at a minimum, the area of influence of the cooling water intake structure. (40 CFR § 122.21(r)(4))

Source Waterbody Flow Information

EPA is proposing to require information to demonstrate that the facility is complying with proportional flow (i.e., intake flow may not exceed a certain proportion of source water body flow) requirements. Specific source water body flow data items are:

- if the cooling water intake structure is located in a **freshwater river or stream**, the annual mean flow and any supporting documentation and engineering calculations to show that the cooling water intake structure meets the flow requirements (40 CFR § 125.86(b)(3) and § 125.36(c)(1))
- if the cooling water intake structure is located in an **estuary or tidal river**, the mean low water tidal excursion distance and any supporting documentation and engineering calculations to show that the cooling water intake structure facility meets the flow requirements (40 CFR § 125.86(b)(3) and § 125.36(c)(1))
- if the cooling water intake structure is located in a **lake or reservoir**, a narrative description of the water body thermal stratification, and any supporting documentation and engineering calculations to show that the stratification will not be altered by the total design intake flow (40 CFR § 125.86(b)(3) and § 125.36(c)(1)).

Additional Information Requirements for Track I

Flow Reduction Information

EPA is proposing to require information to demonstrate that the facility has reduced its flow to a level commensurate with that which can be attained by a closed-cycle recirculating cooling water system. Specific flow reduction data items include:

- a narrative description of the system that has been designed to reduce flow to a level commensurate with that which can be achieved by a closed-cycle recirculating cooling water system and any engineering calculations, including documentation demonstrating that make-up and blowdown flows have been minimized (40 CFR § 125.86(b)(1))
- if the flow reduction requirement is met entirely, or in part, by reusing or recycling water withdrawn for cooling purposes in subsequent industrial processes, documentation that the

amount of cooling water that is not reused or recycled has been minimized (40 CFR § 125.86(b)(1)).

Velocity Information

EPA is proposing to require information to demonstrate that the facility is complying with the requirement to meet a maximum through-screen design intake velocity of no more than 0.5 ft/s at each cooling water intake structure. Specific velocity data items are:

- a narrative description of the design, structure, equipment, and operation used to meet the velocity requirement (40 CFR § 125.86(b)(2))
- design calculations showing that the velocity requirement will be met at minimum ambient source water surface elevations (based on best professional judgement using available hydrological data) and maximum head loss across the screens or other device (40 CFR § 125.86(b)(2)).

Design and Construction Technology Plan

EPA is proposing to require information to demonstrate that the facility has implemented the design and construction technologies necessary to minimize impingement and entrainment and maximize survival of impinged organisms in cases where such technologies are required. The plan must contain information on the technologies that the facility will implement based on the results of the Source Water Biological Baseline Characterization. Specific design and construction technology plan data items include:

- a narrative description of the design and operation of the design and construction technologies, including fish-handling and return systems, that the facility will use to maximize the survival of those species expected to be most susceptible to impingement. This description should include species-specific information that demonstrates the efficacy of the technology (40 CFR § 125.86(b)(4))
- a narrative description of the design and operation of the additional design and construction technologies that the facility will use to minimize entrainment of those species expected to be the most susceptible to entrainment (40 CFR § 125.86(b)(5))

- design calculations, drawings, and estimates to support the above descriptions (40 CFR § 125.86(b)(4)).

Additional Information Requirements for Track II

Track II Comprehensive Demonstration Study

EPA is proposing to require information in the form of a Comprehensive Demonstration Study to characterize the source water baseline in the vicinity of the intake, characterize operation of the cooling water intake, and confirm that proposed technologies reduce the impacts to fish and shellfish to levels comparable to those that would be achieved by implementing the flow reduction, velocity and technology requirements of Track I. The facility must develop and submit a plan to the Director containing a proposal of how information will be collected to support the study. Documentation of the results of the study must also be submitted to the Director. Specific Track II comprehensive demonstration study data items include:

- a description of the proposed technologies to be evaluated in the study (40 CFR § 125.86(c)(2))
- a list and description of any historical studies characterizing the physical and biological conditions in the vicinity of the proposed or actual intakes and their relevancy to the proposed study. If the facility proposes to rely on existing source water body data, it must be no more than 5 years old, and the facility must demonstrate that the existing data are sufficient to develop a scientifically valid estimate of potential impingement and entrainment impacts, and provide documentation showing that the data were collected using appropriate quality assurance procedures. (40 CFR § 125.86(c)(2))
- any public participation or consultation with Federal or State agencies undertaken in development of the plan (40 CFR § 125.86(c)(2))
- a sampling plan for data that will be collected using actual field studies in the source water body. The sampling plan must document all methods and quality assurance procedures for data collection, sampling, and analysis. The proposed sampling and data analysis methods must be appropriate for a quantitative survey and based on a consideration of methods used in other studies performed in the source water body. The sampling plan must include a description of the study area (which must include the area of influence of the cooling water intake structure

and at least 100 meters beyond); identification of the biological assemblages to be sampled (including all life stages of fish and shellfish); data collection, sampling, and analysis methods. (40 CFR § 125.86(c)(2))

- Source Water Biological Characterization. This must include:
 - ▶ a taxonomic identification and characterization of aquatic biological resources to provide: a summary of historic and contemporary aquatic biological resources; determination and description of the target populations of concern (those species of fish and shellfish and life stages that would be most susceptible to impingement and entrainment); and a description of the abundance and temporal/spatial characterization of the target populations based on the collection of multiple years of data to capture the seasonal and daily activities (for example feeding and water column migration) in the vicinity of the cooling water intake structure (40 CFR § 125.86(c)(2))
 - ▶ an identification of all threatened and endangered species that might be susceptible to impingement and entrainment by the cooling water intake structures (40 CFR § 125.86(c)(2))
 - ▶ a description of additional chemical, water quality, and other anthropogenic stresses on the source waterbody (40 CFR § 125.86(c)(2)).
- Evaluation of Potential Cooling Water Intake Structure Effects. This must include:
 - ▶ a statement of the baseline against which the comparative analyses described below will be made. Impingement and entrainment baselines must be calculated for the facility assuming a design of a once-through cooling water system and a shoreline cooling water intake structure employing a trash rack and traveling screens. (40 CFR § 125.86(c)(2))
 - ▶ an engineering estimate of efficacy for the proposed and/or implemented technologies in minimizing impingement and entrainment of all life stages of fish and shellfish and to maximize survival of impinged life stages of fish and shellfish. The facility must demonstrate that the proposed technologies reduce impacts to fish and shellfish to levels comparable to those expected to be achieved by meeting Track I requirements at a shoreline intake at that site. This may be done by showing either (i) that impingement mortality and entrainment of all life stages of fish and shellfish have been reduced to 90 % or greater of the reduction that would be achieved through Track I, or (ii) if the demonstration includes consideration of impacts other than impingement mortality and entrainment, that the measures taken will maintain the fish and shellfish in the waterbody at a substantially similar level as would be achieved under Track I. The efficacy projection must include a site-specific evaluation of technology suitability for reducing

impingement and entrainment based on the Source Water Biological Study. (40 CFR § 125.86(c)(2))

- ▶ a characterization of impingement and entrainment estimates of the proposed alternative technology based on case studies in the vicinity of the CWIS and/or site-specific technology prototype studies (40 CFR § 125.86(c)(2)).
- Verification Monitoring Plan. The Comprehensive Demonstration Study must include a plan to conduct, at a minimum, annual monitoring to verify the full-scale performance of the alternative technologies. The plan must describe the frequency of monitoring, the parameters to be monitored, and the measures that the facility will take if the proposed and/or implemented technologies do not achieve a reduction in impingement and entrainment mortality for all life stages of fish and shellfish equivalent to the level documented in the efficacy projection described above. Verification monitoring must begin during the first year of operation of the CWIS and continue for a sufficient period of time to demonstrate that the facility is reducing the impacts to fish and shellfish to levels comparable to those that would be achieved by implementing the flow reduction and velocity requirements in Track I.

Annual Reporting Requirements

In addition to the one-time reporting requirements, operators would be required to provide the following information in a yearly status report:

- biological monitoring records for each CWIS as required by §125.87(a) (40 CFR §125.88(b))
- velocity and head loss monitoring records for each CWIS as required by § 125.87(b) (40 CFR §125.88(b))
- records of visual or remote inspections as required in §125.87(c) (40 CFR § 125.88(b)).

Record Keeping Requirements

All operators of new facilities would be required to keep records and to report information and data to the permitting authority to show compliance with any requirements they are subject to. Records would be required to be maintained for a period of at least three years from the date of permit issuance unless extended by the request of the Director. Each operator would be required to maintain records of:

- all the data used to complete the permit application and show compliance (40 CFR § 125.88(a))
- any supplemental information developed under §125.86 (40 CFR § 125.88(a))
- compliance monitoring data submitted under §125.87 (40 CFR § 125.88(a)).

The final rule would add several items to the list of records currently maintained by Directors for the NPDES permit program. The additional record keeping items include:

- records of all narrative descriptions, scale drawings, location maps, schematic diagrams, and engineering calculations submitted by new facilities
- records of source waterbody physical and flow information submitted by facilities
- records of source water baseline biological characterization data submitted by facilities
- records of design and construction technology plans submitted by facilities
- records of comprehensive design study plans and study results submitted by new facilities
- records of source water biological studies submitted by facilities
- records of evaluations of potential cooling water intake structure effects submitted by facilities
- records of verification monitoring plans and monitoring results submitted by facilities
- a record of all yearly status reports
- a list of determinations made for each facility
- a list of facilities required to implement design and construction technologies
- a list of monitoring requirements for each system
- a list of all facilities applying for a reduction in their monitoring requirements
- records of any other facility-by-facility and case-by-case decisions made by that Director under the rule.

4b(ii) Respondent Activities

As mentioned above, respondents would include both new facilities and NPDES permit program Directors. Their information collection activities are described below.

Permit Application Activities

All facilities and Directors will need to perform start-up activities such as: reading the rule, planning for the implementation of the rule, and training staff to perform various tasks necessary to comply with the rule. Activities performed during the permit application process are performed only once during each ICR period. However, these application activities are repeated again during the fifth year of the permit cycle as part of the permit renewal process.

General Information

Before new facilities can begin operation of the CWIS, they must first perform several data gathering activities as part of the permit application process. Under the final rule, all facilities would be required to gather source water physical, flow and baseline biological characterization information and intake structure information so that the Director can evaluate potential impact to the water body in which the intake structure is placed.

Activities that would be required to report on source water physical characteristics include:

- describing and drawing the physical configuration of the source water body where the CWIS is located, including areal dimensions, depths, salinity and temperature regimes
- characterizing and documenting the hydrological and geomorphological features of the source waterbody and the intake's area of influence within the waterbody
- creating locational maps of the source waterbody
- maintaining copies of these documents as well as copies of any information used in their development for a period of three years after submittal.

Activities that would be required to report on source waterbody flow include:

- developing a narrative describing the annual mean flow of the waterbody if the CWIS is located in a **freshwater river or stream**, the mean low water tidal excursion distance if the CWIS is located in an **estuary or tidal river**, or the waterbody thermal stratification if the CWIS is located in a **lake or reservoir**
- gathering and producing supporting documentation
- performing engineering calculations

- maintaining a record of pertinent documents for three years after submittal.

Activities that would be required to report on source waterbody baseline biological characterization include:

- collecting existing information to develop a list of species (or relevant taxa) for all life stages and their relative abundance in the vicinity of the CWIS
- identifying which species and life stages would be most susceptible to impingement or entrainment
- identifying and evaluating the primary period of reproduction, larval recruitment, and period of peak abundance for relevant taxa
- collecting data that are representative of the seasonal and daily activities of biological organisms (for example feeding and water column migration) in the vicinity of the CWIS
- identifying all threatened and endangered species that might be susceptible to impingement and entrainment at the CWIS
- documenting data that are not available and efforts made to identify sources of data
- documenting public participation or consultation with Federal or State agencies
- if existing data are supplemented with data collected using actual field studies, developing a narrative description of all methods and quality assurance procedures for data collection, sampling, and analysis, including a description of the study area and the biological assemblages to be sampled and/or evaluated
- maintaining a copy of the characterization and the materials required to produce it for three years after submittal.

Activities that would be required to report on intake structure characteristics include:

- preparing a narrative description of the configuration of the CWIS and its location within the waterbody and in the water column
- measuring and documenting the latitude and longitude of the CWIS
- developing a flow distribution and water balance diagram for the facility that includes all sources of water to the facility, recirculating flows, and discharges
- developing a narrative that describes the operation of the CWIS, including design flows, daily hours of operation, number of days of the year in operation, and seasonal changes if any

- creating engineering drawings and locational maps in support of the CWIS descriptions mentioned
- maintaining copies of these documents as well as copies of any information used in their development for a period of three years after submittal.

Additional Information for Track I

New facilities would be required to gather additional information, depending on which of two alternative permitting tracks they choose. Facilities choosing to comply with the requirements of Track I would be required to gather flow reduction information, velocity information, and design and construction technology information.

Flow Reduction Information

Activities that would be required to report on flow reduction include:

- developing a narrative description of the system that has been designed to reduce the intake flow to a level commensurate with that which can be attained by a closed-cycle recirculating cooling water system
- producing the necessary engineering calculations to demonstrate that the CWIS meets the flow reduction requirement
- developing documentation to demonstrate that make-up and blowdown flows have been minimized
- if the flow reduction requirement is met entirely, or in part, by reusing or recycling water withdrawn for cooling purposes in subsequent industrial processes, developing documentation that the amount of cooling water that is not reused or recycled has been minimized
- maintaining a record of pertinent documents for three years after submittal.

Velocity Information

Activities that would be required to report on velocity include:

- developing a narrative description of the design, structure, equipment, and operation used to meet the velocity requirement
- producing the necessary engineering calculations to show the velocity requirement will be met
- maintaining a record of pertinent documents for three years after submittal.

Design and Construction Technology Plan Information

In cases where additional design and construction technologies or other operational measures are required, the facility must submit information to demonstrate that it will implement design and construction technologies that meet the impingement and entrainment requirements. Activities that would be required to report on design and control technology include:

- providing narrative descriptions of the design and operation of the technologies that will be used to maximize survival of those species expected to be most susceptible to impingement and minimize entrainment of those species expected to be the most susceptible to entrainment
- collecting species-specific information to demonstrate the efficacy of the technology
- producing the necessary design calculations, drawings, and estimates to support the narrative descriptions
- maintaining records of all materials used to develop the narrative descriptions for a period of three years after submittal.

Additional Information for Track II

Facilities choosing to comply with the requirements of Track II would be required to gather comprehensive demonstration study information, including a source water biological study, an evaluation of potential CWIS effects, and a verification monitoring plan.

Comprehensive Demonstration Study Information

The facility must develop and submit a plan for a Comprehensive Demonstration Study to characterize the source water baseline in the vicinity of the cooling water intake structure, characterize operation of the cooling water intakes, and confirm that technologies proposed and/or implemented at

the CWIS achieve comparable reductions in impacts to fish and shellfish as those that would be achieved were the facility to implement the flow reduction, velocity and technology requirements of Track I. The facility must also develop and submit documentation of the results of the study. Tasks include:

- developing and submitting a plan containing a proposal for how information will be collected to support the study
- developing a description of the proposed and/or implemented technologies to be evaluated in the study
- developing a list and description of any historical studies characterizing the physical and biological conditions in the vicinity of the CWIS and their relevancy to the study
- documenting any public participation or consultation with Federal or State agencies undertaken in development of the plan
- developing a sampling plan for data that will be collected using actual field studies in the source water body, documenting all methods and quality assurance procedures for data collection, sampling, and analysis. The sampling plan must include a description of the study area (which must include the area of influence of the cooling water intake structure and at least 100 meters beyond); identification of the biological assemblages to be sampled (both nekton and meroplankton); data collection, sampling, and analysis methods.
- documenting and submitting the results of the study
- maintaining records of all materials used to develop the study plan and document study results for a period of three years after submittal.

In documenting the results of the Comprehensive Demonstration Study, the facility must also develop a Source Water Biological Study to identify chemical and biological considerations as they relate to the facility's CWIS operations. Tasks include:

- identifying and characterizing the taxonomy of aquatic biological resources
- developing a summary of historic and contemporary aquatic biological resources
- determining and describing the target populations of concern (those species of fish and shellfish and life stages that would be most susceptible to impingement and entrainment)
- determining and describing the abundance and temporal/spatial characterization of the target populations based on the collection of multiple years of data to capture the seasonal and daily biological activity in the vicinity of the CWIS

- identifying all threatened and endangered species that might be susceptible to impingement and entrainment at the CWIS
- identifying and evaluating additional chemical, water quality, and other anthropogenic stresses on the source waterbody
- maintaining a copy of the characterization and the materials required to produce it for three years after submittal.

In documenting the results of the Comprehensive Demonstration Study, the facility must also develop an Evaluation of Potential Cooling Water Intake Structure Effects. Tasks include:

- developing a statement of the baseline against which comparative analyses will be made
- calculating and documenting the impingement and entrainment baselines, assuming a baseline design of a once-through cooling water system and a shoreline CWIS employing a trash rack and traveling screens
- developing an engineering estimate of the efficacy of proposed and/or implemented technologies in minimizing impingement and entrainment of all life stages of fish and shellfish and to maximize survival of impinged life stages of fish and shellfish, and in reducing impacts to fish and shellfish to levels comparable to those expected to be achieved by implementing Track I requirements. The efficacy projection must include a site-specific evaluation of technology suitability for reducing impingement and entrainment based on the Source Water Biological Characterization.
- characterizing impingement and entrainment estimates of the alternative technology based on case studies in the vicinity of the CWIS and/or site-specific technology prototype studies
- maintaining a copy of the evaluation and the materials required to produce it for three years after submittal.

As part of the Comprehensive Demonstration Study, the facility must also develop a Verification Monitoring Plan to conduct, at a minimum, annual monitoring to verify the full-scale performance of the alternative technologies. The facility must perform verification monitoring beginning during the first year of operation of the CWIS. Tasks include:

- developing a monitoring plan, including descriptions of the frequency of monitoring, the parameters to be monitored, and the measures that the facility will take if the proposed and/or

implemented technologies do not achieve a reduction in impingement and entrainment mortality for all life stages of fish and shellfish equivalent to the level documented in the efficacy projection described above

- performing and document verification monitoring
- maintaining copies of the Verification Monitoring Plan and verification monitoring records, along with the materials required to produce them for three years after submittal.

Annual Activities

Biological Monitoring

All new facilities affected by the rule would need to perform biological monitoring of the commercial and recreational fisheries and the forage base species identified in either the Source Water Baseline Biological Characterization or the Comprehensive Demonstration Study, for a minimum of two years after permit issuance. The Director may approve a request for less frequent sampling in the remaining years of the permit term, following review of supporting data. Biological monitoring includes both monitoring of impingement and entrainment.

Impingement monitoring involves collecting data on aquatic organisms trapped on the outer part of an intake structure or against screening devices during periods of cooling water withdrawal, to determine the taxa and abundance of impinged organisms. Specific monitoring tasks include:

- collecting impingement samples over a 24-hour period no less than once per month when the CWIS is in operation
- identifying and enumerating impinged organisms
- performing statistical analyses to summarize rates
- maintaining records of impingement monitoring results for at least three years.

Entrainment monitoring involves the collection of data on eggs, larvae, and other plankton incorporated with cooling water flow (entering and passing through a cooling water intake structure and into a cooling water system), to determine the taxa and abundance of entrained organisms. Specific tasks include:

- collecting entrainment samples over a 24-hour period no less than biweekly during the primary period of reproduction, larval recruitment, and peak meroplankton abundance when the CWIS is in operation
- identifying and enumerating entrained organisms
- performing statistical analyses to summarize entrainment rates
- maintaining records of entrainment monitoring results for at least three years.

CWIS Operational Monitoring

Under the proposed section 316(b) New Facilities Rule, all affected facilities would need to monitor the operation of their CWISs. The first type of operational monitoring is the monitoring of the system's velocity, performed during initial facility startup and thereafter at a frequency specified in the facility's NPDES permit, but no less than once per quarter. The second form of operational monitoring is through either visual inspections conducted on at least a weekly basis or through the use of remote monitoring equipment. Specific operational monitoring tasks include:

- if the facility uses intake screen systems, monitoring head loss across the screens (measured at the minimum ambient source water surface elevation) and correlating the measured value with the design intake velocity
- if the facility uses devices other than intake screens, monitoring velocity at the point of entry through the device
- analyzing data to determine if the CWIS is meeting the velocity requirements
- visually inspecting all installed technologies or, alternatively, inspecting remote monitoring devices to confirm that the impingement and entrainment technologies are functioning as designed
- maintaining records of operational monitoring results for at least three years.

Yearly Status Report

All new facilities subject to the rule would be required to prepare and submit an annual report that details compliance with requirements set by the rule and with any additional provisions specified within the permit. Preparation of the report requires:

- compiling biological monitoring records for each CWIS
- compiling velocity and head loss monitoring records for each CWIS
- compiling records of visual or remote inspections
- maintaining a copy of the report for a period of three years after its submission.

Director Activities

NPDES program Directors will act to ensure the implementation of the final rule. To successfully meet their responsibilities, EPA anticipates that Directors will be involved in the following activities:

- reading and understanding the rule
- mobilization and planning
- training facility and consultant staff.

The Director should review materials submitted by the applicant during the initial permit application process and prior to each renewal period thereafter to determine if there have been any changes in facility operations or physical and biological attributes of the source waterbody. Any changes should be evaluated to determine the need for additional or more stringent conditions in the permit.

Section 316(b) requirements are imposed on a facility through an NPDES permit. The Director must determine, based on the information submitted by the new facility in its permit application, the appropriate requirements and conditions to include in the permit based on the track (Track I or Track II) the new facility has chosen to comply with. Specific activities include:

- analyzing and reviewing facility data
- making determinations concerning facilities such as:
 - after receiving the initial permit application, Directors must determine applicable standards in § 125.84 to apply to the new facility and determine compliance with the applicable standards
 - for each subsequent permit renewal, Directors must review the application materials and monitoring data to determine whether additional requirements for design and construction technologies should be included in the permit if they are reasonably

necessary to minimize impingement and entrainment as a result of the effects of multiple cooling water intake structures in the same body of water; seasonal variations in the aquatic environment affected by the cooling water intake structures controlled by the permit; or the presence of regionally important species or threatened and endangered species

- ▶ for Track II facilities, the Director may review the information collection proposal plan required by § 125.86(c)(2)(I). The facility may initiate sampling and data collection activities prior to receiving comment from the Director.
- ▶ Directors must develop permit conditions that, at a minimum, include the performance standards that implement the requirements of § 125.84(b)(1), (2), (3) and (4) or § 125.84(c)(1), (2) and (3). In determining compliance with proportional flow requirement in §§ 125.84(b)(2) and (3), the Director must consider anthropogenic factors unrelated to the new facility's cooling water intake structure that can influence the occurrence and location of the thermocline, including source water inflows, other water withdrawals, managed water uses, wastewater discharges, and flow/level management practices.
- ▶ for a facility that chooses Track I, the Director must review the Design and Construction Technology Plan if required under § 125.84(b)(4), to evaluate the suitability and feasibility of the technology proposed to minimize impingement and entrainment of all life stages of fish and shellfish, or to maximize survival of impinged life stages of fish and shellfish. A condition requiring the facility to reduce impingement and entrainment commensurate with the implementation of the technologies must be placed in the permit. In addition, Directors must consider whether more stringent conditions are reasonably necessary in accordance with § 125.84(d).
- ▶ for a facility that chooses Track II, the Director must review the information submitted with the Comprehensive Demonstration Study information required in § 125.86(c)(2), evaluate the proposed suitability for the proposed technologies at the site, and determine whether the technologies achieve comparable levels of reduction in impacts to fish and shellfish as the facility would if it complied with § 125.84(b)(1) and (2) and used a shoreline intake. A condition requiring the facility to implement the Technology Proposal Plan and to reduce their impingement and entrainment to the level that can be achieved by employing the implemented technologies must be placed in the permit. In addition, the Director must review the Verification Monitoring Plan in § 125.86(c)(2)(ii)(C) and require that the proposed monitoring be performed within the first year of operations at the facility.

- ▶ Directors must determine frequency of the monitoring subject to minimum requirements. The Director may modify the monitoring program when the permit is reissued and during the term of the permit based on changes in physical or biological conditions in the vicinity of the CWIS. The Director may require continued monitoring based on the results of the Verification Monitoring Plan in § 125.86(c)(2)(iii)(C).
- ▶ Directors must determine record keeping and reporting requirements for each facility subject to minimum requirements
- ▶ Directors would have the discretion to include more stringent requirements in the NPDES permits than those specified in the proposed regulations if they determine that more stringent conditions are reasonably necessary to ensure the minimization of impingement and entrainment as a result of the effects of multiple CWISs in the same water body; seasonal variations in the aquatic environment effected by the presence of the permitted CWIS; or the presence of regionally important species
- facility compliance tracking
- record keeping for all reports, documents, and supporting materials submitted by facilities in fulfilment of their cooling water intake requirements of their NPDES permit.

5 THE INFORMATION COLLECTED - AGENCY ACTIVITIES, COLLECTION, METHODOLOGY AND INFORMATION MANAGEMENT

The following sections describe EPA activities related to analyzing, maintaining, and distributing the information collected.

5a Agency Activities

EPA is responsible for promulgating this rule and overseeing its implementation. Implementation of reporting and monitoring requirements would rely extensively on State governments in those States that have authorization under CWA Section 402(b) to implement the NPDES permit program. In States that do not have NPDES permitting authority, EPA is responsible for administering the program. Under these circumstances, EPA performs the same activities as those outlined for Directors in Section 4.

EPA would also be involved in the review of State-issued NPDES permits for compliance with section 316(b) New Facility Regulation requirements. EPA typically reviews NPDES permits in the early stages of implementation of new regulations. As such, EPA assumes that it will perform a detailed review, make comments, and follow up on comments for the 316(b) portions of State issued NPDES permits, during the first three years after promulgation.

5b Collection Methodology and Information Management

The final rule provides minimum requirements regarding the type of information collected. Directors of NPDES programs would be primarily responsible for determining which collection method and information management strategy is most appropriate. EPA will maintain some of the compliance data in its Permit Compliance System (PCS) database. PCS is the national computerized management information system that automates entry, updating, and retrieval of NPDES data and tracks permit issuance, permit limits and monitoring data, and other data pertaining to facilities regulated under NPDES. This technology reduces the burden to the permitting authority of gathering, analyzing, and reporting national permit and water quality data.

Permitting authorities are responsible for reviewing permit applications, permits, monitoring reports, etc. to verify the accuracy of the data. Permitting authorities are also responsible for entering that data into PCS. Different authorities have different approaches for entering the data into PCS and different approaches for checking data quality. This includes the use of coding forms, double-entry, technical review, etc. Many states have developed state databases that are tailored to individual state needs with the system formatted for uploads directly to PCS from the state system. Permit data can be accessed by the public in one of two ways:

- via the Freedom of Information Act (FOIA) by submitting a request to EPA or the State.
- via an on-line query using EPA's Envirofacts Data Warehouse and Applications website at http://www.epa.gov/enviro/index_java.html. Accessing data via Envirofacts provides a method to combine PCS data with other EPA databases and mapping tools.

5c Small Entity Flexibility

The final rule’s minimum intake requirements would exclude most new small entities from the compliance requirements. As a result, the final rule is expected to affect only a small absolute number of facilities owned by small entities. EPA estimated that only one facility within the scope of this regulation and owned by a small entity will be incur costs during the first three years after promulgation of the rule (i.e., the period of this ICR). This facility is a manufacturing facility and constitutes 0.4 percent of all new manufacturing facilities projected to be owned by small entities. Over the next 20 years, 11 facilities owned by small entities are projected to be subject to the final 316(b) regulation. Of these, 8 are estimated to be electric generators and 3 will be manufacturing facilities.

EPA considers the proposed information collection and reporting requirements to be the minimum necessary to ensure that the Section 316(b) goal of “minimizing adverse environmental impact” is met. Because small entities constitute a very small share of the potentially affected facilities, providing them greater flexibility such as less frequent data collection and reporting requirements would not have a large effect on their overall burden, but could have an adverse impact on the effectiveness of the proposed rule. Furthermore, because the proposed reporting requirements differ by water type and permitting track, entities of all sizes have the flexibility to minimize their total compliance costs including the costs and burden of information collection requirements.

5d Collection Schedule

EPA anticipates that 18 new facilities will fall within the scope of the final rule during the first three years after promulgation. The permitting process is anticipated to take less than one year to complete for those facilities following Track I, while it will take approximately three years for those facilities opting to take Track II. A single Track I facility scheduled to begin operation during the first year after promulgation will be on a compressed schedule, so it is assumed that it will not experience delays in commencing operations as a result of the permitting process. All eight Track II facilities planning to begin operation during the ICR approval period will begin operating as scheduled as well. All 18 facilities will undergo initial start-up activities and submit information on CWIS design. Of the 18 facilities that begin the application process during the ICR approval period, nine will begin annual monitoring and reporting activities. Table 6 provides the estimated implementation schedule for these 18 facilities, during the initial ICR approval period.

Table 6. Number of Facilities Assumed to Comply with Information Collection Requirements During the ICR Approval Period by Year

Type of Activity	ICR Approval Period		
	9/2001-8/2002	9/2002-8/2003	9/2003-8/2004
Track I Facilities Beginning the NPDES Permit Application Process	1	0	2
Track II Facilities Beginning the NPDES Permit Application Process	9	4	2
Total Facilities Beginning the NPDES Permit Application Process	10	4	4
Track I Facilities Beginning Annual Monitoring and Reporting of Operations	0	1	1
Track II Facilities Beginning Annual Monitoring and Reporting of Operations	0	6	1
Total Facilities Beginning Annual Monitoring and Reporting of Operations	0	7	2

6 ESTIMATING RESPONDENT BURDEN AND COST OF COLLECTION

The following sections present proposed rationale and results of EPA's estimation of burden and costs for the implementation of the section 316(b) New Facility Rule.

6a Estimating Respondent Burden

This section describes the burden estimates for facilities and Directors, as well as the methods used to derive them. Respondent activities are separated into those activities associated with the NPDES permit application and those activities associated with monitoring and reporting after the permit is issued. The reason for this is that the permit cycle is every five years while ICRs must be renewed every three years. Therefore, the application activities occur only once per facility during an ICR approval period, and so they are considered one-time burden for the purpose of this ICR. By contrast, the monitoring and reporting activities that occur after issuance of the permit occur on an annual basis. For estimates of re-permitting burdens see Exhibits A.12 and A.13 in Appendix A.

Facility Burdens

Information collection would require in-scope facilities to devote time (i.e., as measured by staff hours) and resources (e.g., copies of documents and report mailings) to produce the necessary NPDES permit applications, implementation plans, and annual status reports. Some facilities EPA expects that facility employees, including managers, engineers, engineering technicians, statisticians, draftsmen, and clerical staff, will devote time toward gathering, preparing, and submitting the various documents. To develop representative profiles of each employee's relative contribution, EPA assumed burden estimates that reflect the staffing and expertise typically found in manufacturing facilities and power generating plants. In doing this, EPA considered the time and qualifications necessary to complete a variety of tasks: reviewing instructions, planning responses, researching data sources, gathering and analyzing data, typing or writing the information requested, reviewing results, conferring with permitting authorities and expert consultants, and sending documents.

EPA anticipates that facilities will use the contracted services to perform many of their required sampling and analyzing tasks. The contracted staff are likely to include project managers, biologists,

statisticians, and biological technicians. The work done by these contracted employees will be done on-site on a regular basis. Therefore, the hourly burdens associated with their work are included in the overall burden estimates for each facility.

For each activity burden assumption, EPA selected time estimates to reflect the expected effort necessary to carry out these activities under normal conditions and reasonable labor efficiency rates. EPA assumed that the majority of the actual work performed by facility staff, such as researching, collecting, and analyzing data, as well as writing the documents, will be carried out by junior technical staff. Burdens associated with managerial and senior engineering staff include time for actions such as occasional or seasonal visits to supervise sampling efforts, as well as periodic review of lab results and documentation. EPA assumed that the facilities will employ a drafter to perform computer aided drafting (CAD) operations. For contracted employees, EPA assumes that the majority of the work will be carried out by the biologists and the biological technicians.

Tables 7 and 8 provide a summary of the hourly burden estimates for facilities performing the NPDES permit application, annual monitoring, and annual reporting activities associated with the final rule. For a more detailed presentation of hourly burdens for facilities see Exhibits A.1 and A.2 in Appendix A.

The activities listed in the first column of both Tables 7 and 8 correspond to the facility respondent activities outlined earlier in Section 4b(ii). Start-up burdens account for reading the published regulations, sample permits, and any guidance materials associated with the rule; determining the required staff and resources necessary to successfully complete the application process, and meet all annual monitoring and reporting requirement; and training staff to perform tasks that they would not be required to conduct if the rule were not implemented. General information activities refer to the development and submittal of documentation on source waterbody characteristics and CWIS location and design.

As part of the permit application process, facilities will demonstrate compliance with the proportional flow (i.e., intake flow may not exceed a certain proportion of source water body flow) requirements. Facilities will also collect Source Water Baseline Biological Characterization Data to evaluate the condition of the biological community prior to operation of the new facility and prior to each permit renewal application. The level of effort needed for the study may vary considerably from one facility to another, depending on the availability of existing background information and the characteristics of the waterbody that the CWIS will be located in. For the purpose of developing the

ICR cost and burden estimates, it is assumed that there is sufficient existing data for facilities to develop a baseline characterization of the contributing waterbody's biological community.

If a facility chooses Track I for meeting its permit obligations, the facility also needs to comply with flow reduction, velocity and technology requirements. Under the final rule, new facilities choosing Track I must provide information to the permitting authority demonstrating that they are in compliance with the flow reduction, velocity and technology requirements that are applicable to their CWISs. The facility hourly burdens for demonstrating compliance with these requirements include developing and submitting narrative descriptions, supporting documentation, and engineering calculations. Facility burden for Design and Construction Technology Plans is comparable to the burden for demonstrating compliance with one of the CWIS requirements.

Under Track II, the Comprehensive Demonstration Study evaluates the condition of the biological community prior to operation of the new facility and prior to each permit renewal application. The study entails plan development, a source water biological study, projections of anticipated impacts, and verification monitoring. As with the source water baseline biological characterization, the required effort level for the Track II source water biological study is likely to vary considerably depending on the availability of existing data and the complexity of the habitat that the CWIS will be located in.

For the purpose of developing the ICR cost and burden estimates it is assumed that each Track II facility will perform sampling to develop the Source Water Biological Study for the Comprehensive Demonstration Study. EPA estimates that the sampling for the study will occur over a three year period. Therefore, the entire application process will take at least three years to complete. EPA assumes that start-up activities and general information activities are accomplished during the first year of the permitting process. The Source Water Biological Study activities will be performed over the three years prior to the issuance of the NPDES permit to Track II facilities. The study to evaluate CWIS impacts will be conducted the year just prior to operation of the CWIS to allow the facility time to incorporate information from the Source Water Biological Study already underway. For those Track II facilities beginning operation during the first year of the ICR approval period, EPA assumes that they do not actually begin operating the CWIS until the end of the year, allowing them enough time to conduct the pilot study.

EPA anticipates that start-up, general information, and the Track I activities will be performed by facility staff. For those facilities taking Track II, EPA assumes that the sampling and statistical

analyses will be conducted by the contracted employees, although some of the taxonomic identification, enumeration, and characterization will be performed by a sub-contracted laboratory.

After both Track I and II facilities receive their NPDES permits and commence operations, they have annual monitoring and reporting requirements as well. Velocity monitoring and the inspection of installed technology will be carried out by facility staff. For impingement and entrainment monitoring, EPA assumes that the actual monitoring will be conducted by the contracted employees, while the facility manager and junior technical staff will spend some time reviewing the results in preparation for the yearly status report.

In the first year of permitted operation, Track II facilities are required to use impingement and entrainment monitoring data to perform a verification study, confirming that the CWIS technology is achieving impingement and entrainment rates commensurate to that obtained through closed-cycle recirculation technology. EPA assumes that each year approximately 25% of the Verification Studies will show that the facilities have not achieved the required impingement and entrainment level that they predicted in their Comprehensive Demonstration Studies. As a result, EPA assumes that these facilities will take measures to improve their impingement and entrainment rates and submit another Verification Study the following year.

Director Burdens

The proposed changes to the NPDES permit process will require Directors to devote time and resources to review and respond to the NPDES permit applications; proposal, study and sampling plans; and annual status reports submitted to them. EPA assumed that all NPDES permit program Directors will also undergo start-up activities in preparation for administering the provisions of the section 316(b) New Facility Rule. As part of these start-up activities, Directors are expected to train junior technical staff on how to review materials submitted by facilities, and then use these materials to determine the specific conditions of each facility's NPDES permit with regard to its CWIS.

Each Director's actual burden associated with reviewing submitted materials, writing permits, and tracking compliance will depend on the number of new in-scope facilities that will be built in the Director's State during the ICR approval period. EPA expects that State senior technical, junior technical, and clerical staff will devote time toward gathering, preparing, and submitting the various documents. EPA assumed burden estimates that reflect the staffing and expertise used by States for the

NPDES permit administration process. In doing this, EPA considered the time and qualifications necessary to complete various tasks such as: reviewing submitted documents and supporting materials, verifying data sources, planning responses, determining specific permit requirements, writing the actual permit, conferring with facilities and the interested public, and entering the permit information into the PCS database. Table 9 provides a summary of the hourly burden estimates for Directors performing various activities associated with the final rule. EPA assumes that the directors will spend a significant amount of time reviewing the Sourcewater Biological Characterization Studies. The additional effort devoted to reviewing the study is due to the fact that the studies cover three years worth of data collected at the site. For a more detailed presentation of Director hourly burdens see Exhibit A.3 in Appendix A.

6b Estimating Respondent Costs

This section describes the cost estimates for facilities and Directors, as well as the methods used to derive them. For estimates of re-permitting costs see Exhibits A.12 and A.13 in Appendix A.

6b(i) Estimating Labor Costs

The costs to the respondent facilities associated with these time commitments can be estimated by multiplying the time spent in each labor category by an appropriately loaded hourly wage rate. All base wage rates used for facility labor categories were derived from the Bureau of Labor Statistic's (BLS) *Occupational Outlook Handbook 2000-2001* (BLS, 2000). These reported labor rates were based upon data from the year 1998, and required adjustment for inflation. An inflation factor of 10.5%, derived from the BLS Employment Cost Index (BLS, 2001), was used to adjust the *Occupational Outlook Handbook* labor rates to reflect labor rates for December of 2000. A compensatory loading factor of either 35% or 39% depending on the labor category, was used to account for any paid leave, supplemental pay, insurance, retirement and savings, and required and nonrequired benefits received by employees (BLS, 2001b). EPA assumed an additional loading factor of 15% to account for general overhead costs directly attributable to facility employees performing work in support of the permit process. Expenses for contracted employees, typically include higher overhead costs, as well as fee to ensure profit for the contracting company. EPA assumes that the overhead for the contracted employees will be 50% and the fee will be 8%.

To represent the base labor rate for facility management, EPA used the average national salary for an industrial manager of \$56,320 per year. This figure was divided by 2,080 hours to derive the hourly managerial wage rate of approximately \$27 per hour. After adjusting this rate for inflation, compensation, and overhead the rate is approximately \$48 per hour. The median annual salary of \$35,970 for an engineering technician was used to represent the base labor rate junior technical staff. After determining the hourly wage rate and adjusting for inflation and other factors this labor rate was approximately \$31 per hour. The median annual salary for a drafter performing CAD work was reported to be \$16 per hour, and after adjusting and loading the rate it is approximately \$28. The reported average annual salary for clerical workers was \$19,580 and the fully adjusted and loaded hourly rate is \$18 per hour.

The base labor rate for contracted manager of monitoring work done on-site EPA assumes to be the same as that for the facility manager, with a fully loaded rate of \$67 per hour. The median annual salary for a statistician was \$48,540 per year, with an adjusted hourly rate of approximately \$56 per hour. Biologists and biological technicians have an average hourly pay of \$22 and \$15, and a fully loaded rate of \$55 and \$37, respectively.

Director Labor Costs

For Director costs, all of the base labor rates and compensation factors were derived from published employment cost trends for State and local government workers for the first quarter of 1999 (BLS, 1999). These labor rates were adjusted to reflect labor rates for the final quarter of the year 2000 (BLS, 2000a). EPA chose the BLS labor category of white-collar professional specialist to represent the senior administrative and technical staff that will oversee and manage the NPDES permit program. The base hourly rate for this category was approximately \$29 per hour, and after adjusting for compensation and inflation it is approximately \$45 per hour. Similarly, EPA chose the BLS labor category of white-collar professional technical to represent the junior technical staff that EPA expects to perform the majority of the actual NPDES permitting work. The reported base pay for this category was approximately \$17.50 per hour, which becomes approximately \$29 per hour after being adjusted for compensation, overhead, and inflation. The hourly wage for State government clerical workers was \$13 per hour before adjustment, and approximately \$22 afterward.

6b(ii) Estimating Capital and Operation and Maintenance Costs

Facility O&M Costs

A facility incurs capital/start-up costs when it purchases equipment or builds structures that are needed for compliance with the rule's reporting and record keeping requirements that the facility will not use otherwise. EPA assumed that the facilities would not incur capital/startup costs as a result of this rule.

A facility incurs operation and maintenance (O&M) costs when it uses services, materials, or supplies needed to comply with the rule's reporting and record keeping requirements that the facility will not use otherwise. Any cost for the operation and upkeep of capital equipment is considered O&M costs. Another type of O&M cost is for the purchase of contracted services such as laboratory analyses. The purchase of supplies such as filing cabinets and services such as photocopying or boat rental, are also considered O&M costs, and are referred to as other direct costs (ODCs).

EPA assumes that samples taken for the Source Water Baseline Biological Characterization Study will be analyzed by a contracted laboratory. The outside laboratories will perform taxonomic classification, data tabulation, and then deliver the data back to the facility. For the three years of monitoring estimated for the Source Water Baseline Biological Characterization Study, this service is estimated to cost \$118,500 for facilities located adjacent to freshwater waterbodies and \$198,830 for facilities drawing from either estuaries or the Great Lakes.

For the evaluation of CWIS effects, EPA anticipates that facilities will perform pilot studies to determine the effectiveness of the technology they will be using to minimize impingement and entrainment. EPA assumes that the facility will be willing to spend approximately 10% of the anticipated costs of installing and operating the proposed technology. For costing purposes, EPA is assuming that a pilot study will be performed using a Gunderboom system. The range of costs for a floating Gunderboom system for a 150 MGD intake structure is \$1.8 to \$2.5 million in capital costs, and \$150 to \$300 thousand in annual O&M costs (Campbell, George, & Strong, 2001). Using 10% of the high end of this range, EPA estimates the Track II facility spends \$250,000 to purchase and install a pilot Gunderboom system, and \$30,000 to operate and maintain it for the study. EPA assumes the pilot study impingement samples will be analyzed on-site by the biologists due to the difficulty of preserving impingement samples for shipment to an outside laboratory. Entrainment analysis of pilot study

monitoring samples will be performed by an outside laboratory, at a cost of \$41,600 for facilities drawing from freshwater, and \$70,200 for facilities drawing from estuaries and the Great Lakes.

For annual O&M costs, EPA assumes again that the analysis of impingement monitoring samples will be done on-site, while entrainment monitoring samples will be performed by an outside laboratory. Entrainment samples are estimated to cost \$8,300 per year for freshwater facilities, and an estimated \$10,640 per year for facilities drawing from estuaries or the Great Lakes.

In general, the labor costs and O&M costs reported in this analysis are assumed to represent typical average national cost estimates that are likely to be incurred by new facilities and by permitting authorities. EPA attempted to take into account various factors such as decreases in labor efficiency that occur during extreme climate conditions, equipment down time, and the occasional sample that might need to be replaced because it was lost or spoiled during transport. The Tables 7 and 8 provide a summary of both the estimated labor costs and ODCs per facility. For a more detailed presentation of all compliance costs for facilities see Exhibits A.1 and A.2 in Appendix A.

Table 7. Burden and Costs per Facility for NPDES Permit Application Activities

Activities	Burden (hrs)	Labor Cost (\$)	ODC (\$)
Start-up Activities	43	\$1,585	\$50
Permit Application Activities	146	\$4,598	\$500
Source Waterbody Flow Information	104	\$3,010	\$100
Source Water Baseline Biological Characterization Data	265	\$8,975	\$750
CWIS Flow Reduction Requirements (Track I)	108	\$3,261	\$400
CWIS Velocity Requirements (Track I)	138	\$4,428	\$1,000
Design and Construction Technology Plan (Track I)	85	\$2,840	\$50
Comprehensive Demonstration Study Plan (Track II)	383	\$13,563	\$1,000
Source Water Baseline Biological Characterization Study - Freshwater (Track II)*	4,217	\$221,819	\$7,800
Source Water Baseline Biological Characterization Study - Estuary (Track II)*	5,178	\$274,845	\$13,000
Evaluation of Potential CWIS Effects - Freshwater (Track II)*	2,142	\$112,150	\$500
Evaluation of Potential CWIS Effects - Estuary (Track II)*	2,578	\$135,141	\$500

*This activity also has contracted service costs associated with it.

Table 8. Burden and Costs per Facility for Annual Monitoring and Reporting Activities

Activities	Burden (hrs)	Labor Cost (\$)	ODC (\$)
Biological Monitoring (Impingement) - Freshwater	307	\$15,847	\$500
Biological Monitoring (Impingement) - Estuary	388	\$20,240	\$650
Biological Monitoring (Entrainment) - Freshwater	614	\$32,370	\$4,000
Biological Monitoring (Entrainment) - Estuary	776	\$41,035	\$4,000
Velocity Monitoring	163	\$4,993	\$100
Visual Inspection of Installed Technology and Remote Monitoring Equipment	253	\$8,159	\$100
Verification Monitoring - Freshwater (Track II)	92	\$3,804	\$500
Verification Monitoring - Estuary (Track II)	122	\$5,146	\$500
Yearly Status Report Activities	348	\$13,071	\$750

Director O&M Costs

EPA does not anticipate any operation and maintenance costs other than ODCs for Directors as a result of the final rule. Table 9 provides estimates of Director ODCs and labor costs. For a more detailed explanation of Director costs see Exhibit A.3.

Table 9. Estimating Director Burden and Costs for Activities

Activities	Burden (hrs)	Labor Cost (\$)	ODC (\$)
Director Start-up Activities (per State/Territory)	100	\$3,514	\$50
Director Permit Issuance Activities (per Facility)	723	\$29,128	\$350
Annual Director Activities (per Facility)	50	\$1,670	\$50

6c Estimating Agency Burden and Costs

As mentioned previously, there are 44 States and Territories authorized to administer the NPDES permitting program. For new in-scope facilities applying for permits in the 12 unauthorized

States and Territories, EPA will incur the costs and burdens similar to those incurred by States with permitting authority. This analysis, however, assumes that facilities complying with the rule during the ICR approval period will be in NPDES authorized States.

EPA typically reviews NPDES permits in the early stages of implementation of new regulations. Based on historical reports submitted for 316(b) demonstrations, EPA assumes that it will take approximately 37 hours to perform a detailed review, make comments, and follow up on comments for the 316(b) portions of a State issued NPDES permit. Table 10 summarizes Federal burden and cost estimates. Further detail is provided in Exhibit A.4.

Table 10. Estimating Federal Burden and Costs for Activities

Activities	Burden (hrs)	Labor Cost (\$)	ODC(\$)
Federal Permit Program Oversight Activities (per Permitted Facility)	52	\$1,737	\$50

6d Estimating the Respondent Universe and Total Burden and Costs

During the first three years after promulgation, there are an estimated 18 facilities along with 44 States and Territories that the section 316(b) New Facility Rule will affect. The rule would require each respondent to comply with one or more provisions. In turn, each provision has numerous activities associated with it. Exhibits A.5 and A.6 in Appendix A provide an estimate of the number of respondents and responses expected for each provision of the rule during each year of the ICR approval period. The annual estimates are based on the compliance schedule used to estimate the cost of the final rule. In addition, Exhibits A.7-A.10 provide a summary of the respondent burdens and costs for each year of the ICR approval period. These estimates were calculated by multiplying facility and Director level burden and cost estimates in A.1-A.3 by the number of respondents in A.5.

6e Bottom Line Burden Hours and Costs Tables

This section provides a description of bottom line data collection and record keeping burden and cost estimates for implementation of the final rule.

6e(i) Respondent Tally

The bottom line burden hours and costs for facilities and Directors are the total annual hours and costs collectively incurred for all activities during the ICR approval period. Table 11 provides a summary of the average annual number of respondents, burden hours, and costs. A more detailed summary can be found in Exhibit A.11.

Table 11. Summary of Average Annual Respondents, Responses, Burden, and Costs for Facilities and Directors for the ICR Approval Period

	Average Annual Respondents*	Average Annual Burden (hours)	Average Annual Labor Costs (2000\$)	Average Annual O&M Costs (2000\$)	Total Average Annual Costs (2000\$)
Facilities	14	37,104	\$1,930,941	\$1,762,814	\$3,693,755
State Directors	24	3,271	\$159,820	\$2,967	\$162,787
Totals	38	40,375	\$2,090,761	\$1,765,781	\$3,856,542

* Average respondent total does not match the reported number of respondents due to a rounding discrepancy.

6e(ii) Agency Tally

The bottom line burden hours and costs for the federal agency are the total annual hours and costs collectively incurred for all activities during the ICR approval period. Table 12 provides a summary of the average annual agency burden hours, and costs. A more detailed summary can be found in Exhibit A.11.

Table 12. Summary of Average Annual Respondents, Responses, Burden, and Costs for Facilities and Directors for the ICR Approval Period

	Average Annual Burden (hours)	Average Annual Labor Costs (2000\$)	Average Annual O&M Costs (2000\$)	Total Average Annual Costs (2000\$)
Agency Totals	160	\$6,495	\$300	\$6,795

6f Reasons For Change In Burden

The change in burden results from proposed regulatory changes that require information collection and record keeping activities. These proposed regulatory changes partially fulfill EPA's obligation to comply with the consent agreement entered in *Cronin v. Browner*, 93 Civ. 0314 (AGS) S.D.N.Y., filed Oct. 10, 1995, and amended in *Riverkeeper, Inc. v. Whitman*, filed November 21, 2000. These agreements require that EPA propose and finalize regulations that implement section 316(b) of the CWA by specified dates. The final rule is a direct result of the consent agreement requirements.

6g Burden Statement

The annual average reporting and record keeping burden for the collection of information by facilities responding to the section 316(b) New Facility Rule is estimated to be 2,650 hours per respondent (i.e., an annual average of 37,104 hours of burden divided among an anticipated annual average of 14 facilities). The Director reporting and record keeping burden for the review, oversight, and administration of the rule is estimated to average 136 hours per respondent (i.e., an annual average of 3,271 hours of burden divided among an anticipated 24 States on average per year).

Burden means the total time, effort, or financial resources expended by persons to generate, maintain, or disclose or provide information to or for a Federal agency. This includes the time needed to review instructions; develop, acquire, install, and utilize technology and systems for the purposes of collecting, validating, and verifying information, processing and maintaining information, and disclosing and providing information; adjust the existing ways to comply with any previously applicable instructions and requirements; train personnel to be able to respond to a collection of information; search data sources; complete and review the collection of information; and transmit or otherwise disclose

information. An agency may not conduct or sponsor, and a person is not required to respond to, a collection of information unless it displays a currently valid OMB control number. The OMB control number for EPA's regulations are listed in 40 CFR Part 9 and 48 CFR Chapter 15.